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ABSTRACT

In preparing students for business writing, a technical writing class should foster (1) a sensitivity to audience and an understanding of the business or technical organizational audience, (2) analytical problem solving that precedes any but the simplest writing task, (3) understanding of the patterns of organization that make information clear to the intended audience, and (4) a mastery of the editing skills needed to keep their writing correct and concise. A four-day assignment, which uses an article describing the events surrounding a failed brake design produced for an Air Force project, tests students' ability to write an analysis from a narrative form and involves exploring different ways of describing things in order to come upon insights about relationships and key issues. The article takes the reader through the unraveling of the problem, but the students are given the article only to the point of the failed test. Students must then write a report to the president of the company and explain how the failure occurred and how to prevent such problems in the future. The assignment provides an opportunity for the technical writing teacher to help students acquire the skills of audience awareness, the ability to do problem analysis as a precursor to writing discussion sections, the recognition of report format with an executive summary up front and the discussion after it, and the freedom to choose from a number of possibilities. (EL)

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Teaching Technical Writing: Focusing on Process

by Patricia Kelly Santelmann

Students in technically oriented fields approach their classes in professional writing with expectations that differ from those of the technical writing teacher. They expect to learn how to write in the appropriate format and how to get rid of their surface errors. They are very interested in learning how to write memos, letters, proposals, instructions and reports well enough so that the secretaries and technicians don't snicker at them behind their backs. These students are highly motivated, but they don't originally see a technical writing course as a course that seriously engages their intellectual capacities. So we must, to some extent, justify ourselves and explain to them the difference between our expectations and theirs. We have to tell them our plans, explain that we want them to learn the following:

1. a sensitivity to audience and an understanding of the audience situation as it exists in the business or technical organization.

2. strategies for analytical problem solving that precedes any but the simplest writing task.

3. understanding of the patterns of organization that make the information clear to the intended audience.

4. a mastery of the editing skills needed to keep their writing correct and concise.

There is an additional important goal: the gradual shift of

CS 208932

the student's stance toward writing--from a passive fulfiller of teacher demands--or requests--to an active decision maker in the writing task.

Thinking and organizing are elusive skills, and this fact creates a problem; the goals mentioned are not nebulous, but they do involve a certain amount of chaos before order is attained. What Winkler calls "Structural models" (8) are so orderly, so controlled; since the structural model represents what the students tend to expect; and given the uncertainty connected with the more conceptualized goals, there is a very real temptation to escape to the safety of the model and let the process approach filter through in disjointed places.(8)

However, by presenting, early in the term, a classroom assignment that focuses on process but which uses a report format, the teacher of technical writing can set the tone of the course as a process-oriented one. If the assignment also asks the student to solve a problem for which there is no clear-cut solution, it can establish a precedent for the student's assuming responsibility for decisions about writing as well.

The assignment I am about to describe uses an article called "The Aircraft Brake Scandal", by Kermit Vandivier. It appeared in Harper's magazine, in April 1972 (7). The article tells about the events surrounding a failed brake design produced for an Air Force project. An engineer at B.F. Goodrich designed the brake; the flawed design was the result of erroneous mathematical calculations, the failure to correct the design was due to a

series of cumulative and fairly complicated combination of personal and organizational miscalculations. Eventually the company shipped the defective brake, accompanied by a falsified report of test results, to the Air Force. The brake failed and tests on the plane for which it was designed had to be suspended.

The author of the article was the man who wrote the falsified report; his article takes the reader all the way through the unraveling of this problem, but the students are given article only up to the point of the failed test.

Their assignment reads as follows:

> You are the assistant to the president of the Goodrich Tire Company. Your office is at company headquarters in Akron, Ohio. You have received the following memo from your boss:
>
> June 21, 19--
>
> to: -------
>
> from: D. Elstad, President, Goodrich Tire Company
>
> I have just received word that the Air Force is canceling tests on the A7D because of brake failure. I've got the Air Force report on the brake performance during testing and it's terrible. That brake came out of our Troy plant. You get down to Troy and find out what's going on down there. I need to know what went wrong and how to prevent any more of these fiascos. We need that Air Force contract. I'll be waiting for your report.

* * * * * * * * *

Two of the goals mentioned previously --sensitivity to audience and strategies for analytical writing-- are inherent in the design of this assignment. The audience is both immediate and primary, to use the terminology of Mathes and Stevenson (5). Since the primary audience is by definition the "decision making"

audience, the instructor is able to talk about the needs of the executive audience and the use of the executive summary in report writing.

In addition, the information the student receives comes in a narrative form. The article is a story, with a traditional beginning middle and end. In order to write the analytical memo, the student must sort out conflicting and recalcitrant data. Students, especially the students who select and succeed in an engineering major, are able to form and verbalize sophisticated judgments about such data. These carefully reasoned judgments and analyses are often not reflected in the written work we get from them. They see the writing of discussion basically as the task of persuasion rather than the careful and reasoned presentation of data. They leave out any information that does not substantiate their stance.

Since problem analysis often must involve the acknowledgment and subsequent discussion of material that does not fit in, students need to see modeled for them the exploration of such ideas and events. Often these explorations lead to different conclusions by different people, and there is no right answer. In order for them to be comfortable with the uncertainty of such an activity, we have to give them the freedom to explore their thinking processes and tell us what they have come up with; we need to show them how that process involves a dynamic series or network of judgments.

Because exploratory activity involves false starts,

controlling organizational properties of transactional writing, she--or he--must go through some kind of expressive language, the register of which is often at a different level than the final rhetorical register appropriate to the writing in hand (1). The significant fact is that this is something each of us must do for ourselves. Britton observed children in the upper middle schools of England, but he contends that this recourse to an expressive language is never wholly discarded, even by the mature writer, and it is this activity which is encouraged by the examination of the parts of the problem.

There are a number of ways to do this. One way is to break down the information into discrete elements, so that the students are forced to re-organize it. For my class, I use treeing (2) which I've learned to call "the graphic presentation of data." I introduce it by means of an exercise designed by a former colleague at the University of Minnesota, Dr. Jo Ann Liebmann Kleine(4). In this exercise, the students provide bits of data by a cooperative listing the contents of their refrigerators. It's a simple but effective way of generating single pieces of data; and it leads to simple and straightforward labeling of categories. Nobody has much trouble categorizing eggs and butter and milk "dairy products" and beer and cigarettes and diet cola "vices" or something equally satisfying.

Because it is the generalizations of academic discourse that enable us to speak efficiently about abstract ideas, the better students have become adept at the language of generalization and

tend to generalize too quickly in problem analysis. They subsequently find that the early generalization, neat as it may be, is not inclusive enough or precise enough to express the facts The nature of the string generated by the refrigerator exercise emphasizes for the student the importance of examining single bits of data as a means of "invention"; for it is by exploring different ways of describing things that we come upon our insights about relationships and key issues It is important, therefore, that the students be shown the advantages of examining the information from different ways and discouraged from generalizing too quickly.

After I have modeled the "graphic presentation of data" with the contents of the refrigerators, the students are ready to explore the data contained in this complicated issue of a faulty brake design.

The assignment takes four days; with the activities divided in the following way:

Day One -- the students have read the article and are introduced to the concept of graphic representation of data up to the second level, that of categorizing.

Day Two -- This second day has as its goal moving the students from their graphic strings and first level hierarchies, or categories, to a problem statement: the students bring their graphs or trees to class; we put several of them on the board. Each of them must answer the question, "what's the main problem you're going to tell the CEO about?" The student must show how

that answer is a natural result of the data that has been drawn out of the article. It's essential to keep the developmental aspects of discourse generation in mind, to recognize the necessity of expressive language, its halting and often disorganized characteristics. It's also essential, however, to keep the rhetorical goals clear to the student, and so to this end, the second day includes a handout describing the format of the analytical report and an assignment to draft the text of this report for the next class period, a draft that they will then conference on with a classmate.

Day Three -- involves conferencing. The students, in pairs, read each other's drafts and, using a set of questions based heavily upon the organizational requirements of the report, respond to the text. Since one of the goals of the course is sensitivity to audience, this exercise helps the students learn what their text means to an outside reader--the difference between what's on the paper and what they thought was on the paper. The student also gets feedback on the appropriateness of his or her solution and the credibility of his evidence. The rewrite is due in class the next class period.

Day Four - During this class period, the students practice their editing skills on their rewritten texts. I emphasize the following:

. use of transition words

. repetition of key words

. the use of "this" as an adjective instead of a pronoun

. control of the passive and active voice

The final draft is due within two class periods.

This is not a perfect assignment. It does not yield perfect papers. My experience with it, however, has convinced me that it is a valuable one. It provides the opportunity for the technical writing teacher to help students acquire the skills of audience awareness, ability to do problem analysis as a precursor to writing discussion sections; recognition of report format with an executive summary up front and the discussion after it; and finally, it gives them the freedom to make an authoritative decision about the outcome of a situation where there are other possibilities.

As support for these as significant goals, I quote from a speech given in August of 1984 by Richard D. McCormick, president of Northwestern Bell. He was speaking to a gathering of English teachers in Omaha, Nebraska. The title of his speech was "Business Loves English."

Richard Mccormick is not only the president of Northwestern Bell, he is an engineer. Here are several excerpts from his speech:

> Now, Ill admit, as an engineer, that I like to have a lot of facts about subject before I make a decision. But I still wish that the people who work for me could bring me a one-page analysis and recommendation and keep the background in the background
>
> We like to call this electronic communication era "The Information Age."
>
> The real winners in the information age will not be those with the most information, but those who know how to sort out the important stuff!(6)

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